Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

and the hands of the operator washed in corrosive sublimate, but perfectly pure cultures were not obtained in any instance.

Though the cultures were not perfectly pure, they had such a very small amount of impurities in them that the results were almost or quite the same as would very probably be obtained from pure cultures.

The inferences drawn from these experiments are that both yeast (Saccharomyces cerevisiæ) and bacteria (Bacillus subtilis?) separately generate carbon-dioxide in sufficient quantities to raise bread. The amount of gas generated is presumably in direct proportion to the growth of the organisms and the viscosity of the surrounding medium. From the fact that the bacteria-inoculated fluid gave off more carbon-dioxide than the yeast fluid, while the bacteria sponge gave off less than the yeast sponge, it would indicate that the growth of yeast was less in the fluid than the growth of bacteria, but greater in the sponge, as the sponges in both cases were most probably of equal viscosity, as the conditions were as nearly as possible the same in both.

It was demonstrated by the experiments that both yeast and bacteria can separately raise bread, and, under the conditions of the experiments, the yeast somewhat better than the bacteria. Now, whether or not they act together in raising bread ordinarily was not demonstrated, but from the fact that both organisms were found in large quantities in dough that had been raised by Fleischmann's yeast, and that bacteria are always in the air and in large quantities on the surface of the grain from which flour is made, and also that they occur in all preparations of yeast ferment, it seems to be the only satisfactory conclusion that both the bacteria and the yeast act together in raising most if not all kinds of bread.

Purdue University, Lafayette, Ind.

BRIEFER ARTICLES.

Some effects of the mild winter.—The mild weather during the past winter caused so many remarkable changes in the usual habits of plants, in this locality, that I can not forbear offering a few notes for publication. Malva rotundifolia, Stellaria media, Alyssum maritimum, Capsella Bursa-pastoris, Bellis perennis, and Lamium amplexicaule, continued in bloom all winter, except about the first three weeks of March, during which time it was so cold as to stop vegetable growth. The cold spell however broke up with a warm rain, and so much of the advanced vegetation went on growing from the stage where it had been checked.

Many of the flowers of Malva rotundifolia and Lamium amplexicaule went through the stages of anthesis without opening. Since warm weather has set in these flowers have lost their cleistogamous character. Poa annua remained green and in panicles all winter. Cydonia Japonica was in a blaze on New Year's day, and continued to bear flowers until May 10. January 2 I found scattering blossoms on the common peach, but it did not bloom fully until April 15. Forsythia suspensa bore flowers from January 1 to April 11. Spiræa hypericifolia was in bloom from January 6 to the end of April. January 5, Acer dasycarpum, and January 19, Acer rubrum began to show flowers. They were in full bloom, or fruiting, when the cold snap of March came, the result being that nearly all their fruit was killed. Lindera Benzoin began blooming and leafing very early in January, most of the fruit and many of the trees being destroyed by the March freeze. In those instances where the bark and sap were frozen, the bark became dry and cracked as if the shrub had been burned.

Viola tricolor and the var. arvensis have been in bloom, in gardens and fields, since January 6.

Syringa vulgaris began sending out leaves February 4, but all the leaves and the half opened flower clusters were killed during the first half of March. Very few, if any, of these species produced mature flowers here.

The daffodil and spring crocus were in bloom from February 1 to the second week in May.

Ulmus fulva was in bloom February 10, and Ulmus Americana, February 13, but they, like the maples, lost nearly all their fruit during the first half of March.

Vinca minor was found in bloom February 13; Ranunculus abortivus and Muscari botryoides, February 20, and Hyacinthus orientalis, February 25; they were checked during the frosty days in March. It was later than usual when they finally were through blooming.

During February the buds of Acer saccharinum and of the var. nigrum were well advanced, but did not come to flowering; many of these buds were frozen during March, so that very few trees bore flowers in May—not more than one tree in thirty. But the interesting fact was noted, that of the trees which did bear flowers nearly all were nigrum. This would appear to indicate that the variety is better suited to withstand severe exposure, than the species, while in an advanced stage of æstivation; due probably to the extra protection afforded by the down on the bud. The diagnostic points of the leaves and fruit, given by some authors as existing between the species and the variety, do not hold good in this locality. The only constant distinguishing sign being the downy petiole and buds. Probably more time and favoring conditions may yet make this a distinct species. The variety is far less abundant, in this vicinity, than the true species.

I have cultivated, for a number of years, a bed of Melilotus officinalis, and another of Datura meteloides. During all these years they behaved as annuals, but this spring they came up in abundance from last year's roots, and also from the scattered seeds.

I have been much interested in noting the progress Phoradendron flavescens has made during the past two mild winters. It is found in much greater abundance and in larger bunches than I have yet seen it in this vicinty. A few more mild winters and it would extend its range northward several hundred miles. During the past twenty years, on several occasions, it has been almost entirely exterminated by cold winters.

In addition to the hosts given (BOTANICAL GAZETTE ix. 102), for this locality, I can now add Prunus serotina.—JACOB SCHNECK, *Mt. Carmel, Illinois.*

A new Helianthemum.—Mrs. S. B. Walker, of Castle Rock, Colorado, has for two successive seasons sent specimens of a Helianthemum which ought to be characterized as a good variety of H. Canadense, as follows:

H. Canadense, var. **Walkeræ.** Leaves narrowly obovate to linear-oblong, 12 to 36 mm. long: petal-bearing flowers 1 to 5, on pedicels 6 to 8 mm. long: petals obovate, obcordate or cuneate, 6 to 8 mm. long, bright yellow, varying to paler: secondary flowers apparently wanting: capsule 4 to 6 mm. long.—Douglas County, Colorado, 1889 and 1890. *Mrs. S. B. Walker.*

The resemblance to H. Canadense is quite well marked, but that species is not given as occurring west of Minnesota, while our variety occurs in a region hitherto said to be without a representative of the genus. The specimens are excellent, and collected at various times, yet none of them show any secondary flowers so characteristic of the species. This character together with the leaves and more numerous petal-bearing flowers, make a sufficiently marked variety.—WALTER H. EVANS, *Crawfordsville, Ind.*

Penicillium and corrosive sublimate.—Dr. Coulter, on the above topic, in the March number of the GAZETTE, relates an experience that is similar to one we have had with our glue bottles in the laboratory. By protracted sterilization of bottle and addition of a considerable quantity of a saturated solution of mercuric chloride, the growth of the fungus was stopped. As neither of these results were determined quantitatively, an experiment was tried with percentage solutions, to see how much mercuric chloride was necessary to stop the growth of the fungus. 10 c. c. tubes of gelatine, to which were added 1, 2 and 3 c. c. of a solution of mercuric chloride (1:1000) were copiously inoculated with Penicillium glaucum and then plated out according to the usual bacteriological